

A study was conducted correlating a person's age (x) with the number of car accidents (y) they are involved in. The results showed a linear regression of  $y = -\frac{5}{8}x + 22.5$  and a correlation coefficient of  $-0.84$ .

- a) What does this tell you about the relationship between a person's age and the number of car accidents they are involved in?

older age / less accidents

- b) How many accidents does a 32 year old get involved in?

$$y = -\frac{5}{8}(32) + 22.5 = y = 2.5 \text{ accidents}$$

- c) How old is a person who is involved in 11 car accidents?

$$11 = -\frac{5}{8}x + 22.5$$

$$-11.5 = -\frac{5}{8}x$$

$$x = 18.4 \text{ years}$$

8/d

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$$4x + 20 = 5(x + 3)$$

$$4x + 20 = 5x + 15$$

$$\begin{array}{r} 4x + 20 = 5x + 15 \\ -4x \quad -4x \\ \hline 20 = x + 15 \\ -15 \quad -15 \\ \hline 15 = x \end{array}$$

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$$5x + 10(4x + 3) = 15$$

$$5x + 40x + 30 = 15$$

$$\begin{array}{r} 45x + 30 = 15 \\ -30 \quad -30 \\ \hline 45x = -15 \\ \div 45 \quad \div 45 \\ \hline x = -\frac{1}{3} \end{array}$$

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$$2x + 2(2x - 3) = -3$$

$$2x + 4x - 6 = -3$$

$$\begin{array}{r} 6x - 6 = -3 \\ +6 \quad +6 \\ \hline 6x = 3 \\ \div 6 \quad \div 6 \\ \hline x = \frac{1}{2} \end{array}$$

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- 1.) Solve  $a = \frac{V - V_0}{t}$  for  $V_0$

$$(t)a = \frac{V - V_0}{t} (t)$$

$$at = V - V_0$$

$$\begin{array}{r} -V \quad -V \\ \hline at - V = -V_0 \end{array}$$

$$\begin{array}{r} at - V = -V_0 \\ -1 \quad -1 \quad -1 \\ \hline -at + V = V_0 \end{array}$$

$$\frac{3}{-1} = \frac{-3}{-1}$$

$$-3 = x$$

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- 2.) Solve  $P = 2l + 2w$  for  $w$

$$\frac{P}{2} - \frac{2l}{2} = \frac{2w}{2}$$

$$\boxed{\frac{P}{2} - l = w}$$

$$\frac{P - 2l}{2} = \frac{2w}{2}$$

$$\boxed{\frac{P - 2l}{2} = w}$$

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3.) Solve  $A = \frac{1}{2}h(b_1 + b_2)$  for  $b_2$

$2(A) = h(b_1 + b_2)$

$2A = h(b_1 + b_2)$

$2A = hb_1 + hb_2$

$-hb_1 -hb_1$

$\frac{2A - hb_1}{h} = \frac{hb_2}{h}$

$\frac{2A - hb_1}{h} = b_2$

$\frac{2A - hb_1}{h} = b_2$

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4.) Solve  $I = P(1 + rt)$  for  $t$

$I = P(1 + rt)$

$\frac{I}{P} = \frac{P(1 + rt)}{P}$

$\frac{I}{P} = 1 + rt$

$\frac{I}{P} - 1 = rt$

$\frac{I - P}{P} = rt$

$\frac{I - P}{Pr} = t$

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5.) Solve  $T = T_0 - a(z - z_0)$  for  $a$

$T - T_0 = -a(z - z_0)$

$\frac{T - T_0}{z - z_0} = \frac{-a(z - z_0)}{z - z_0}$

$\frac{T - T_0}{z - z_0} = -a$

$\frac{-T + T_0}{z - z_0} = a$

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6.) Solve  $F = G \frac{mM}{r^2}$  for  $m$

$F r^2 = G \frac{mM}{r^2} (r^2)$

$\frac{F r^2}{G M} = m$

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7.) Solve  $S = L - RL$  for  $L$

$S = L(1 - R)$

$\frac{S}{1 - R} = L$

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8.) Solve  $d = \frac{ax - bx}{c}$  for  $x$

$cd = ax - bx$

$\frac{cd}{a - b} = x$

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HW 1.6 Wksht 1-20

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